

IN THE CLAIMS

For the convenience of the Examiner all pending claims of the present Application are shown below whether or not an amendment has been made.

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1. **(Original)** A method for allocating data in a hierarchical organization of data, comprising:
 - determining new values for one or more parents in the organization of data;
 - determining current values for one or more children in the organization of data, each child being hierarchically related to one or more of the parents;
 - determining the relationship between each parent and its children;
 - determining a variation for each child; and
 - determining a new value for each child by allocating the new values of the parents to the children based on the parent-child relationships, the current values of the children, and the variations of the children.
 2. **(Original)** The method of Claim 1, wherein the new values of the parents represent demand forecasts to be allocated to the children.
 3. **(Original)** The method of Claim 1, wherein the variation of each child is calculated using statistical techniques based on the historical variation in the values of the child over a specified time period.

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4. **(Original)** The method of Claim 1, wherein the new value of each child is determined using the equation:

$$\bar{x}' = \bar{x} + \Sigma R^T (R \Sigma R^T)^{-1} (\bar{y} - R \bar{x}),$$

in which \bar{x}' comprises a vector of the new values of the children, \bar{x} comprises a vector of the current values of the children, Σ comprises a matrix of the variations of the children, R comprises a matrix identifying the parent-child relationships, and \bar{y} comprises a vector of the new values of the parents.

5. **(Original)** The method of Claim 1, wherein the new value of each child is determined using the equation:

$$\bar{x}'_i = \bar{x}_i + \frac{\sigma_{i,i}}{\sum_i \sigma_{i,i}} (\bar{y} - \sum_i \bar{x}_i),$$

in which \bar{x}'_i comprises the new value of the child i , \bar{x}_i comprises the current value associated with a child i , $\sigma_{i,i}$ comprises the variation of the child i , $\sum_i \sigma_{i,i}$ comprises the sum of the variations of the children, $\sum_i \bar{x}_i$ comprises the sum of the current values of the children, and \bar{y} comprises the new value of the parent of the child i .

6. **(Original)** The method of Claim 1, wherein:
the organization of data comprises one or more dimensions; and
the parents and children are all members of the same dimension within the organization of data.

7. **(Original)** The method of Claim 1, wherein:
the organization of data comprises multiple dimensions; and
the parents and children are each associated with multiple dimensions of the organization of data.

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8. **(Original)** The method of Claim 7, wherein the parents and children each represent a storage location within the organization of data that is uniquely identified by the positions of members in two or more of the dimensions.

9. **(Original)** The method of Claim 7, wherein the organization of data comprises at least two dimensions selected from the group consisting of a time dimension, a product dimension, and a geography dimension.

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10. **(Original)** A system for allocating data in a hierarchical organization of data, comprising:

data storage including:

one or more parents having associated values; and

a plurality of children having associated values, each child being hierarchically related to one or more of the parents; and

a server coupled to the organization of data and operable to:

receive a new value for one or more of the parents;

receive a current value for one or more of the children;

receive an identification of the relationship between each parent and its children;

receive a variation for each child; and

determine a new value for each child by allocating the new values of the parents to the children based on the parent-child relationships, the current values of the children, and the variations of the children.

11. **(Original)** The system of Claim 10, wherein the new values of the parents represent demand forecasts to be allocated to the children.

12. **(Original)** The system of Claim 10, wherein the variation of each child is calculated using statistical techniques based on the historical variation in the values of the child over a specified time period.

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13. **(Original)** The system of Claim 10, wherein the server is operable to determine the new value of each child using the equation:

$$\bar{x}' = \bar{x} + \Sigma R^T (R \Sigma R^T)^{-1} (\bar{y} - R \bar{x}),$$

in which \bar{x}' comprises a vector of the new values of the children, \bar{x} comprises a vector of the current values of the children, Σ comprises a matrix of the variations of the children, R comprises a matrix identifying the parent-child relationships, and \bar{y} comprises a vector of the new values of the parents.

14. **(Original)** The system of Claim 10, wherein the server is operable to determine the new value of each child is determined using the equation:

$$\bar{x}'_i = \bar{x}_i + \frac{\sigma_{i,i}}{\sum_i \sigma_{i,i}} (\bar{y} - \sum_i \bar{x}_i),$$

in which \bar{x}'_i comprises the new value of the child i , \bar{x}_i comprises the current value associated with a child i , $\sigma_{i,i}$ comprises the variation of the child i , $\sum_i \sigma_{i,i}$ comprises the sum of the variations of the children, $\sum_i \bar{x}_i$ comprises the sum of the current values of the children, and \bar{y} comprises the new value of the parent of the child i .

15. **(Original)** The system of Claim 10, wherein:
the organization of data comprises one or more dimensions; and
the parents and children are all members of the same dimension within the organization of data.

16. **(Original)** The system of Claim 10, wherein:
the organization of data comprises multiple dimensions; and
the parents and children are each associated with multiple dimensions of the organization of data.

17. **(Original)** The system of Claim 16, wherein the parents and children each represent a storage location within the organization of data that is uniquely identified by the positions of members in two or more of the dimensions.

18. **(Original)** The system of Claim 16, wherein the organization of data comprises at least two dimensions selected from the group consisting of a time dimension, a product dimension, and a geography dimension.

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19. **(Original)** Software for allocating data in a hierarchical organization of data, the software embodied in a computer-readable medium and operable to:

- determine new values for one or more parents in the organization of data;
- determine current values for one or more children in the organization of data, each child being hierarchically related to one or more of the parents;
- determine the relationship between each parent and its children;
- determine a variation for each child; and
- determine a new value for each child by allocating the new values of the parents to the children based on the parent-child relationships, the current values of the children, and the variations of the children.

20. **(Original)** The software of Claim 19, wherein the new values of the parents represent demand forecasts to be allocated to the children.

21. **(Original)** The software of Claim 19, wherein the variation of each child is calculated using statistical techniques based on the historical variation in the values of the child over a specified time period.

22. **(Original)** The software of Claim 19, wherein the new value of each child is determined using the equation:

$$\bar{x}' = \bar{x} + \Sigma R^T (R \Sigma R^T)^{-1} (\bar{y} - R \bar{x}),$$

in which \bar{x}' comprises a vector of the new values of the children, \bar{x} comprises a vector of the current values of the children, Σ comprises a matrix of the variations of the children, R comprises a matrix identifying the parent-child relationships, and \bar{y} comprises a vector of the new values of the parents.

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23. **(Original)** The software of Claim 19, wherein the new value of each child is determined using the equation:

$$\bar{x}'_i = \bar{x}_i + \frac{\sigma_{i,i}}{\sum_i \sigma_{i,i}} (\bar{y} - \sum_i \bar{x}_i),$$

in which \bar{x}'_i comprises the new value of the child i , \bar{x}_i comprises the current value associated with a child i , $\sigma_{i,i}$ comprises the variation of the child i , $\sum_i \sigma_{i,i}$ comprises the sum of the variations of the children, $\sum_i \bar{x}_i$ comprises the sum of the current values of the children, and \bar{y} comprises the new value of the parent of the child i .

24. **(Original)** The software of Claim 19, wherein:
the organization of data comprises one or more dimensions; and
the parents and children are all members of the same dimension within the organization of data.

25. **(Original)** The software of Claim 19, wherein:
the organization of data comprises multiple dimensions; and
the parents and children are each associated with multiple dimensions of the organization of data.

26. **(Original)** The software of Claim 25, wherein the parents and children each represent a storage location within the organization of data that is uniquely identified by the positions of members in two or more of the dimensions.

27. **(Original)** The software of Claim 25, wherein the organization of data comprises at least two dimensions selected from the group consisting of a time dimension, a product dimension, and a geography dimension.

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28. **(Original)** A system for allocating data in a hierarchical organization of data, comprising:

means for determining new values for one or more parents in the organization of data;

means for determining current values for one or more children in the organization of data, each child being hierarchically related to one or more of the parents;

means for determining the relationship between each parent and its children;

means for determining a variation for each child; and

means for determining a new value for each child by allocating the new values of the parents to the children based on the parent-child relationships, the current values of the children, and the variations of the children.

29. **(Original)** A method for allocating data in a hierarchical, multi-dimensional organization of data, comprising:

determining demand forecasts for one or more parents in the organization of data;

determining current demand values for one or more children in the organization of data, each child being hierarchically related to one or more of the parents;

determining the relationship between each parent and its children, the parents and children each representing a storage location within the organization of data that is uniquely identified by the positions of members in two or more dimensions of the organization of data;

determining a variation for each child, the variation calculated using statistical techniques based on the historical variation in the values of the child over a specified time period; and

determining a new demand value for each child by allocating the demand forecasts for the parents to the children based on the parent-child relationships, the current demand values of the children, and the variations of the children.

30. **(Original)** The method of Claim 29, wherein the new demand value of each child is determined using the equation:

$$\bar{x}' = \bar{x} + \Sigma \mathbf{R}^T (\mathbf{R} \Sigma \mathbf{R}^T)^{-1} (\bar{y} - \mathbf{R} \bar{x}),$$

in which \bar{x}' comprises a vector of the new demand values of the children, \bar{x} comprises a vector of the current demand values of the children, Σ comprises a matrix of the variations of the children, \mathbf{R} comprises a matrix identifying the parent-child relationships, and \bar{y} comprises a vector of the demand forecasts of the parents.

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31. **(Original)** A system for allocating data in a hierarchical, multi-dimensional organization of data, comprising:

a hierarchical, multi-dimensional organization of data including:

one or more parents having demand associated values; and

a plurality of children having associated demand values, each child being hierarchically related to one or more of the parents;

the parents and children each representing a storage location within the organization of data that is uniquely identified by the positions of members in two or more dimensions of the organization of data; and

a server coupled to the organization of data and operable to:

receive a forecasted demand value for one or more of the parents;

receive a current demand value for one or more of the children;

receive an identification of the relationship between each parent and its children;

receive a variation for each child, the variation calculated using statistical techniques based on the historical variation in the values of the child; and

determine a new demand value for each child by allocating the demand forecasts of the parents to the children based on the parent-child relationships, the current demand values of the children, and the variations of the children.

32. **(Original)** The system of Claim 31, wherein the new demand value of each child is determined using the equation:

$$\bar{x}' = \bar{x} + \sum R^T (R \sum R^T)^{-1} (\bar{y} - R \bar{x}),$$

in which \bar{x}' comprises a vector of the new demand values of the children, \bar{x} comprises a vector of the current demand values of the children, \sum comprises a matrix of the variations of the children, R comprises a matrix identifying the parent-child relationships, and \bar{y} comprises a vector of the demand forecasts of the parents.

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33. **(Original)** Software for allocating data in a hierarchical organization of data, the software embodied in a computer-readable medium and operable to:

determine demand forecasts for one or more parents in the organization of data;

determine current demand values for one or more children in the organization of data, each child being hierarchically related to one or more of the parents;

determine the relationship between each parent and its children, the parents and children each representing a storage location within the organization of data that is uniquely identified by the positions of members in two or more dimensions of the organization of data;

determine a variation for each child, the variation calculated using statistical techniques based on the historical variation in the values of the child; and

determine a new demand value for each child by allocating the demand forecasts for the parents to the children based on the parent-child relationships, the current demand values of the children, and the variations of the children.

34. **(Original)** The software of Claim 33, wherein the new demand value of each child is determined using the equation:

$$\bar{x}' = \bar{x} + \Sigma R^T (R \Sigma R^T)^{-1} (\bar{y} - R \bar{x}),$$

in which \bar{x}' comprises a vector of the new demand values of the children, \bar{x} comprises a vector of the current demand values of the children, Σ comprises a matrix of the variations of the children, R comprises a matrix identifying the parent-child relationships, and \bar{y} comprises a vector of the demand forecasts of the parents.
